Chapter 6

The Rock Island District Fleet

The *Montana* and *Caffrey*, purchased by Major G. K. Warren in 1867, became the first boats of the Rock Island District. Here they are shown at the St. Paul waterfront, outfitted as dredge and snagboats. The wooden triangles at the bow are Long's scrapers.

Although much of the improvement work done by the Corps of Engineers on the Upper Mississippi since 1866 was done by contract, as Congress wished, the experimental nature of the early work demanded close supervision by the Corps, and frequently, construction by the use of hired labor as well. Then, too, until the work of improvement was well under way, contractors lacked the equipment required by the many different kinds of improvement. In 1879, for example, when the 4½-foot channel project began, there were only four privately-owned dredges on the Upper Mississippi. Contractors were not about to invest in specialized and expensive—and often experimental—equipment until more regular appropriations made it clear that Congress was serious about navigation improvement. Because of irregular funding, few improvement projects before 1866 were ever carried through and completed. Finally, most of the early contractors with enough experience to bid on river navigation projects were Eastern firms who had difficulty moving equipment so far.

THE ROCK ISLAND DISTRICT FLEET

The result was a Rock Island District boat fleet. As the number and complexity of projects on the Upper Mississippi expanded, the Rock Island District gradually developed an impressive fleet of Goats of all shapes and sizes: towboats, tenders, snagboats, canal boats, dipper and hydraulic dredges, quarterboats, buildingboats, barges, launches, and skiffs.

It was for the beginnings of this fleet that the District, under prodding by Montgomery Meigs, established a dry dock and machine shop alongside the Des Moines Rapids Canal in 1883. Between 1896 and 1908 this was followed by three more boatyards: one at Fountain City, Wisconsin; one at South Stillwater, Minnesota; and the Silver Lake Boatyard operated in conjunction with the Milan section of the Illinois and Mississippi Canal. Here the Government plant was kept in repair; the yards at Stillwater and Silver Lake also provided winter quarters for the fleet.

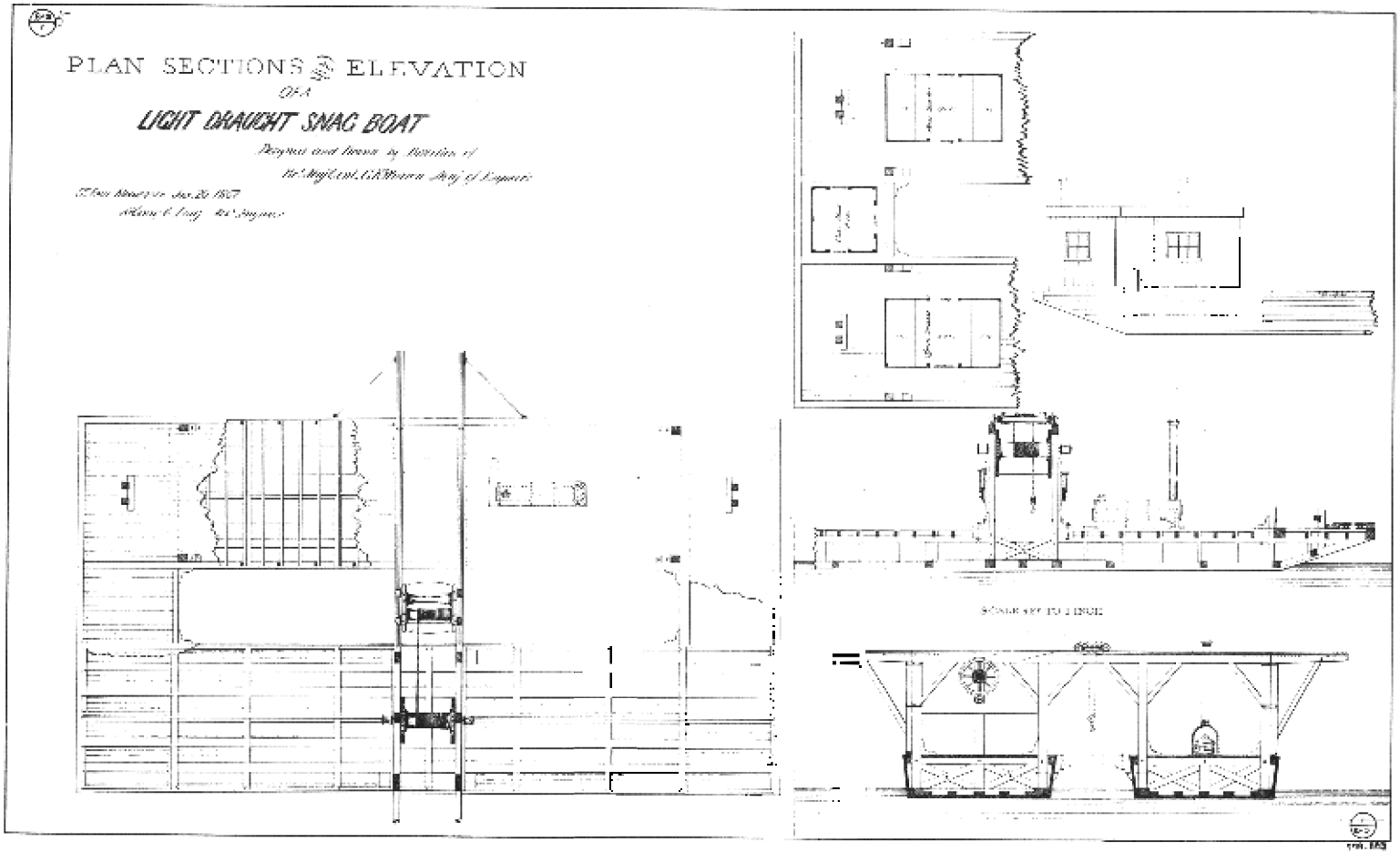
Rock Island District boats were not only repaired and wintered at these yards; many boats designed by Meigs and other engineers were built here. The Des Moines Rapids Canal Dry Dock remained the major installation, and the large steamboats were built there, The Fountain City and Stillwater boatyards were used to construct barges and quarterboats, and an occasional dredge. At the peak of their activity from 1890 to 1910, work at these boatyards far outstripped the output of any other Engineer district in the United States, building, rebuilding, and servicing a Rock Isknd District fleet of more than 200 named boats.[1]

Montgomery Meigs remained in charge of the boatyard he had built at Keokuk, while the other three boatyards were in local charge of the assistant engineers responsible for the sub-sections of the District {which had been established by Colonel Mackenzie}. J.D. DuShane was in charge of the Stillwater yard, William Thompson of the Fountain City yard, and L.L. Wheeler operated the Silver Lake yard as part of his canal responsibilities. The yards serviced boats and barges operating in their

own section, but they did other work as needed as well. In fact, when Major Riche expanded the Fountain City boatyard and added the Stillwater yard, he had in mind building barges and other floating plant for other districts on the entire Mississippi River, but, as C.W. Durham, chief of the engineering section at Rock Island noted, "steel and southern pine knocked that out."[2] Nevertheless, for a year or two, as the District prepared for the 6-foot channel project, there was plenty for the boatyards to do.

With the coming of the 9-foot channel, done mostly by contract work, the need for such an extensive fleet disappeared. As the limits of the Rock Island District contracted, boats were transferred to the St. Louis and St. Paul Districts. The Stillwater Boatyard lasted only several years and the Fountain City yard went with that section of the river to St. Paul. The Des Moines Rapids Canal shops disappeared with the canal in 1912 and were replaced with a dry dock, but minus the boat building facilities. The last of the large boats, the "million dollar dredge" Rock *Island*, was transferred out of the District in 1958. Today the District maintains a modest fleet of towboats, tenders, and workboats, but the hiss of the steam engine and the slap-slap of the paddles are long gone.

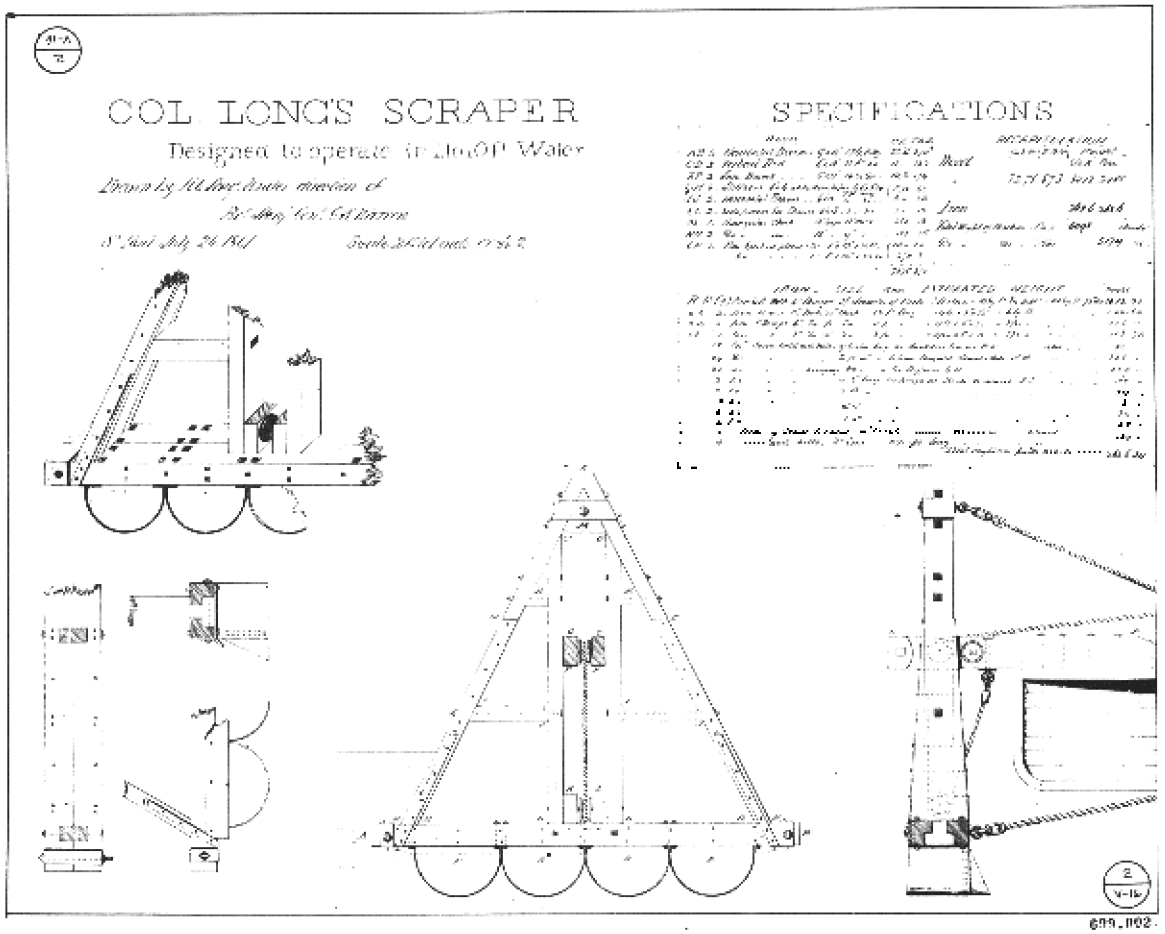
The first steamboats in the Rock Island District were the *Montana* and the *Caffrey* bought by Warren in St. Louis in 1867. Warren had previously purchased a quarterboat and several small skiffs for his survey crews in the fall of 1866, but these were moved from place to place by rented boats or commercial packets. Wilson at Keokuk had been given no appropriations for boats at all. Warren had requested an appropriation for Wilson to buy boats, claiming that the rapids work was suffering for lack of transportation,[3] but finally Warren lent his own boats to the Rock Island Rapids project,. The Des Moines Rapids work had one small canal boat drawn by horses. Meanwhile, Wilson's assistants Lieutenant Charles Allen and E.F. Hoffmann moved from place to place by obtaining free passes on commercial packets.[4]


PLAN SECTIONS & ELEVATION
OF A
LIGHT DRAUGHT SNAG BOAT

Plans for a light draft snagboat far work in the shallower waters of the Upper Mississippi, designed by Major G. K. Warren In 1867. More like a barge, this boat had no power to work on its own.

The *Montana* had been built for the Missouri River trade and the *Caffrey* for the Tennessee River. Both boats required extensive modification to suit them for their Upper Mississippi snagging and dredging operations. The work was performed at the dock yards of the N.W.U. Packet Company at LaCrosse, Wisconsin, and at St. Paul. The boats had their forward guards removed, and the boiler and hurricane decks reduced. In addition, the *Caffrey* had ita Texas deck and the superfluous parts of the cabin removed. Both boats were fitted with Long's Scraper for dredging (though Warren placed these in the bow rather than in the stern where Long had placed them). The *Montana* wa3 also fitted with swinging cranes of 15 tons lifting power each for snag removal. As a pilot for the *Montana*, Warren hired David Tipton, one of the mast respected men

Major Warren adapted Long's Scraper for Upper Mississippi use in 1867, and installed them on both the *Montana* and *Caffrey*. The scrapers dredged sandbars by stirring up the mud or sand-so that the current could carry it away.



on the river. David Tipton had begun as a keelboatman; he continued in the service of the Rock Isknd District until he dropped dead at the wheel of hi3 boat in 1904 at the age of 84.[5] The last of the District snagboats was named the *Tipton* in his honor after he died.

Warren was able to operate the *Montana* and *Caffrey* very economically. The total cost of wages, fuel, and food came to about $100 per day per boat. The cost of operating commercial packets on the Upper Mississippi during this same period ran between $350 and $650 per day.

In 1868 Warren bought a small raftboat, the *Winneconne*, for the Wisconsin River improvement. The boat cost $8,600 and was well built for snag operations because of her rafting equipment. Low water in 1868 prevented her from working on the Wisconsin that season. During the 1869 season she was employed cleaning out snags between Portage and Sauk City, but her draft was troublesome on the shallow river. Warren recommended cutting the boat in two and lengthening the hull to decrease the draft. but this was not done.

When Warren left his duties on the Upper Mississippi, the boats he had assembled were transferred to Macomb.

In 1877 Macomb received authority to buy a dredge for the Des Moines Rapids Canal work. This boat, was the slipper dredge *Ajax*, built at Quincy, Illinois, in 1876 by H.S. Brown, for which Macomb paid $11,500. The *Ajax* was a medium boat 73 feet long with a 26-foot beam and a 3-foot, 5-inch draft. The steam hoisting engine operated a 1½-cubic yard dipper at the end of a 30-foot boom. The *Ajax* served as the canal dredge until after World War I.

Also in 1877 Macomb bought a small steam launch, the *Iris*, for $350 to use in the improvement of the Burlington, Iowa, harbor.[6]

The first boats designed by District personnel specifically for District projects were built the

following year, in 1878, when Major Farquhar improvised two steam drill scows in an attempt to improve rock excavation at the Rack Island Rapids. These have been described in Chapter 3. The drilling scows were used at the Des Moines Rapids in the channel between Nashville and Montrose. (See illustration on page 94).

During the fall and winter of 1878-79 the machinery and deck of the worn-out *Montana* were put in a new hull by D.S. Barmore at Jeffersonville, Indiana, home of several early ship-building firms. The new boat was named the *General Barnard* in honor of the man who had been Chief Engineer of defenses of Washington and Chief Engineer of the Armies in the Field under Grant during the Civil War. General Barnard had refused a nomination from President Lincoln to become Chief of Engineers following Totten's death. In 1878 General Barnard had been appointed to the Board on Improvement of the Low-water Navigation of the Mississippi and Missouri Rivers.[7] The *Barnard* arrived in Rock Island on April 24, 1879.

The practice of rebuilding worn-out boats into new ones with new names was a common practice on the Mississippi where machinery was expensive and the hulls subject to frequent wrecks and the natural effects of being in water and ice. When the *General Barnard* was condemned in 1900, however, it was replaced by an entirely new hat, the *Colonel A. Mackenzie*. Only the dishes and a few items of furniture from the *Barnard* went with the new boat. The *Mackenzie* was renamed the *David Tipton* in 1907 (after only slight modification), and served as the District snagboat until 1921.

The *General Barnard* was the grandest boat ever built for the Rock Island District. Because the machinery of the *Montana* was used in her construction, her total cost was only $21,000. For this, the District got a sidewheel steamboat whose overall dimensions were 220 feet long with a 64-foot, 3-inch beam (extending out over a 37-foot-wide hull), and a 5-foot hold. Her wheels were 25 feet in diameter with 12 buckets an each wheel. She contained a total of 17 staterooms, of which the six aft

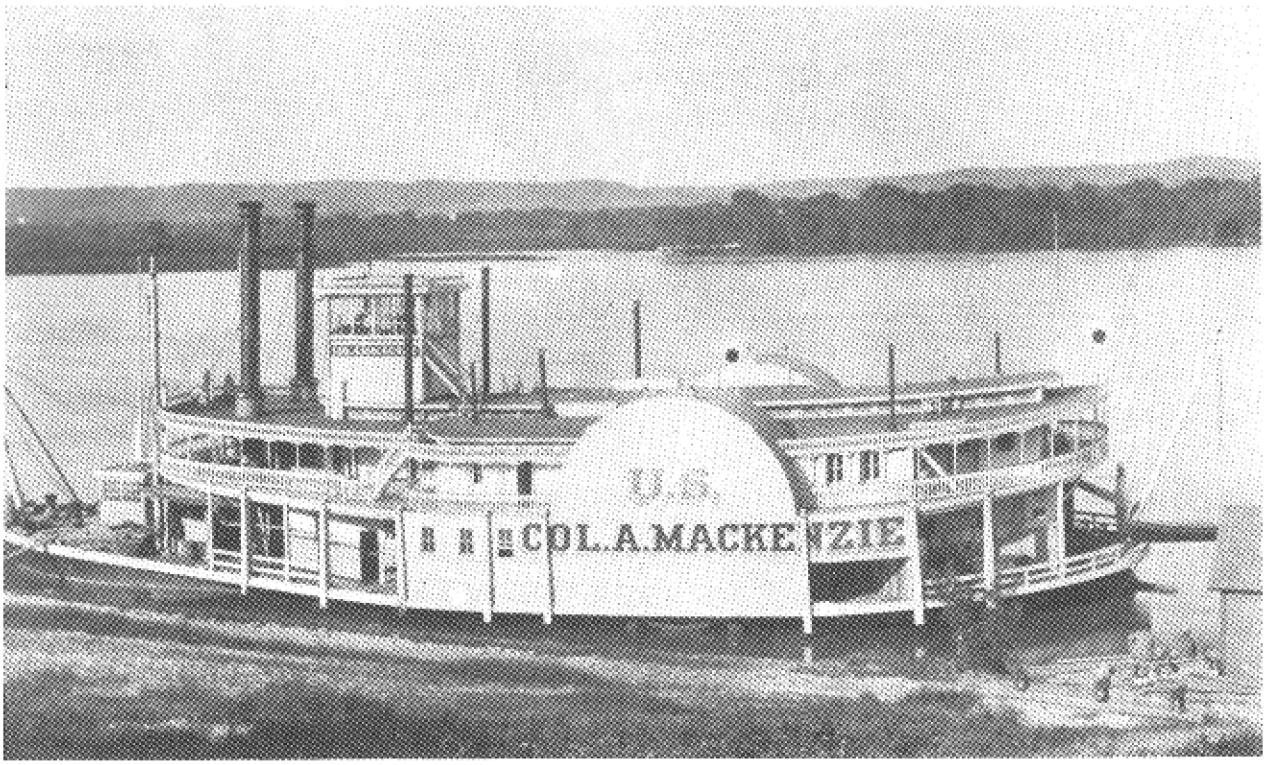
tions, and is admirably fitted for her work."[8] The *Barnard* was condemned on August 22, 1900, and sent to Jeffersonville, Indiana, where she was sold at auction for $1,000.

In addition to the *Barnard*, Mackenzie added four small steam launches to the fleet in 1879: the *Mary*, *Bessie*, *Irene*, and *Wasp*. These were used as dredge tenders, towboats, inspection boats, and for general purpose work on the Des Moines Rapids-to-St. Pad section of the 4½-foot channel project. The boats were built at Rock Island with engines constructed at the Rock Island Arsenal. At least om, the *Irene*, was designed by Montgomery Meigs, the first of a long series of Maigs' designs.

The River and Harbor Bill of March 3, 1881, provided for construction of a light-draft snagboat to be used to assist the *General Barnard*. Then on April 4, the Chief of Engineers authorized Mackenzie to build two medium towboats. All three of these boats were designed by Montgomery Maigs.

The two towboats, the *Fury* and *Vixen*, were built during the spring and summer of 1881 by Joseph Reynolds of Dubuque. They were identical sternwheel boats, 100 feet long with a 20-foot beam and a 26-inch draft. Their wheels were 13 feet in diameter. The *Fury* (U.S. Towboat No. 2) came off the ways on October 3, 1881, and the Vixen (U.S. Towboat No. 3) on November 10. Each boat cost $12,000.

The snagboat was designed and drawn during the fall of 1881 and built in the winter and spring of 1882 by Howard and Company of Jeffersonville. This boat, the *J.G. Parke*, was 140 feet long with a 28-foot beam and a 4-foot draft. Most of the Government boats built for improvement work were plain and functional, but the sternwheel *Parke* was a beautiful boat with an ornate pilot house and gingerbread trim in the best riverboat tradition. The *Parke* was named after the Engineer officer who was a member of the party that in 1849-50 had determined the Iowa-Minnesota Territory line, and who served as chief astronomer and surveyor of the party marking the Northwest Boundary in 1857-61.

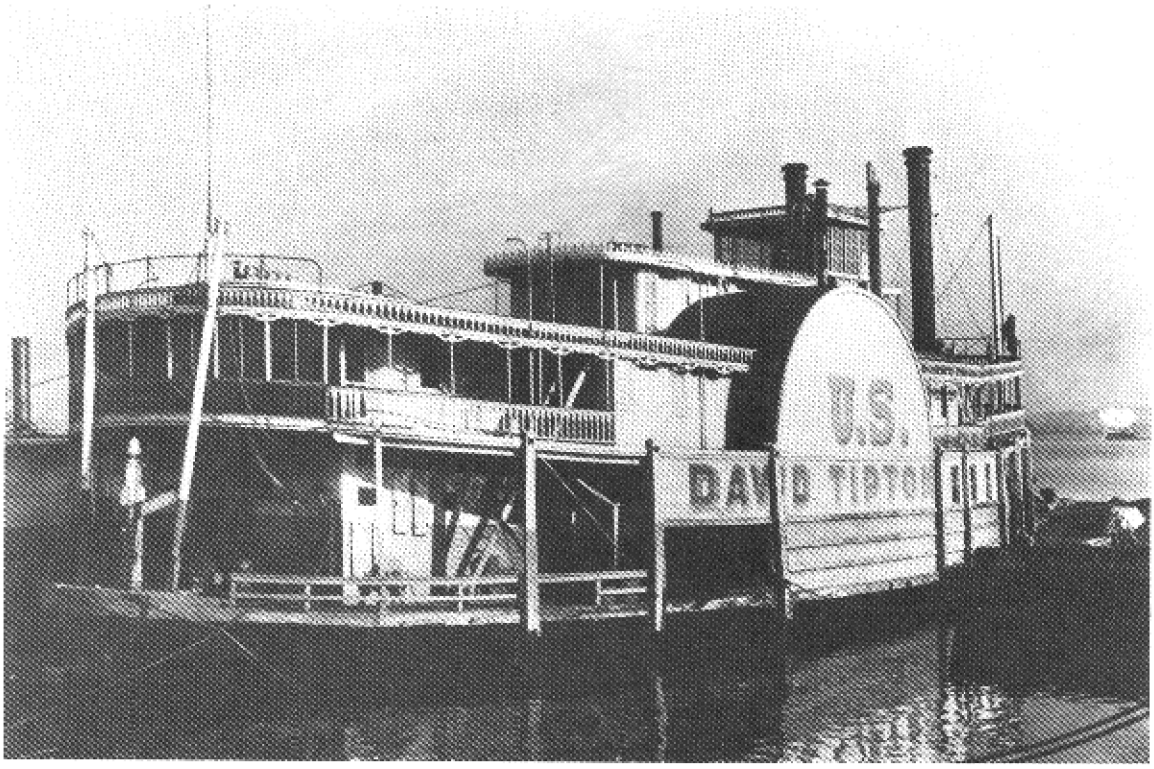


The *Barnard* was replaced as the District snagboat in 1900 by an entirely new boat, the *Colonel Alexander Mackenzie.*

The boat cost $18,750, and performed snagging and other operations in the District until 1904, when she was condemned and broken up.

Two other steamboats were purchased in 1881, the *Alert* (U.S. Towboat No. 1) and the *Coal Bluff,* a large boat 148 feet, 7 inches by 28 feet, 4 inches, weighing 175 tons. These boats went to work an the section of river from the Des Moines Rapids to the mouth of the Illinois River, During the disastrous floods in the spring of 1882, the *Coal Bluff* and the *Barnard* were sent to the relief of flood victims below St. Louis. The *Coal Bluff* carried 1,689 barrels of meal, 383 boxes of bacon, 17 bales of tenting, and other freight on this trip to Vicksburg.

The *Coal Bluff* wa3 another of the District boats with miraculously long life, still going strung in 1922. The District fleet received good care, undergoing frequent repair and rebuilding, with the result that it was not unusual for these wooden boats to last 30 or years, in contrast to the fleeting life of the average commercial packet. The *Geyser* may

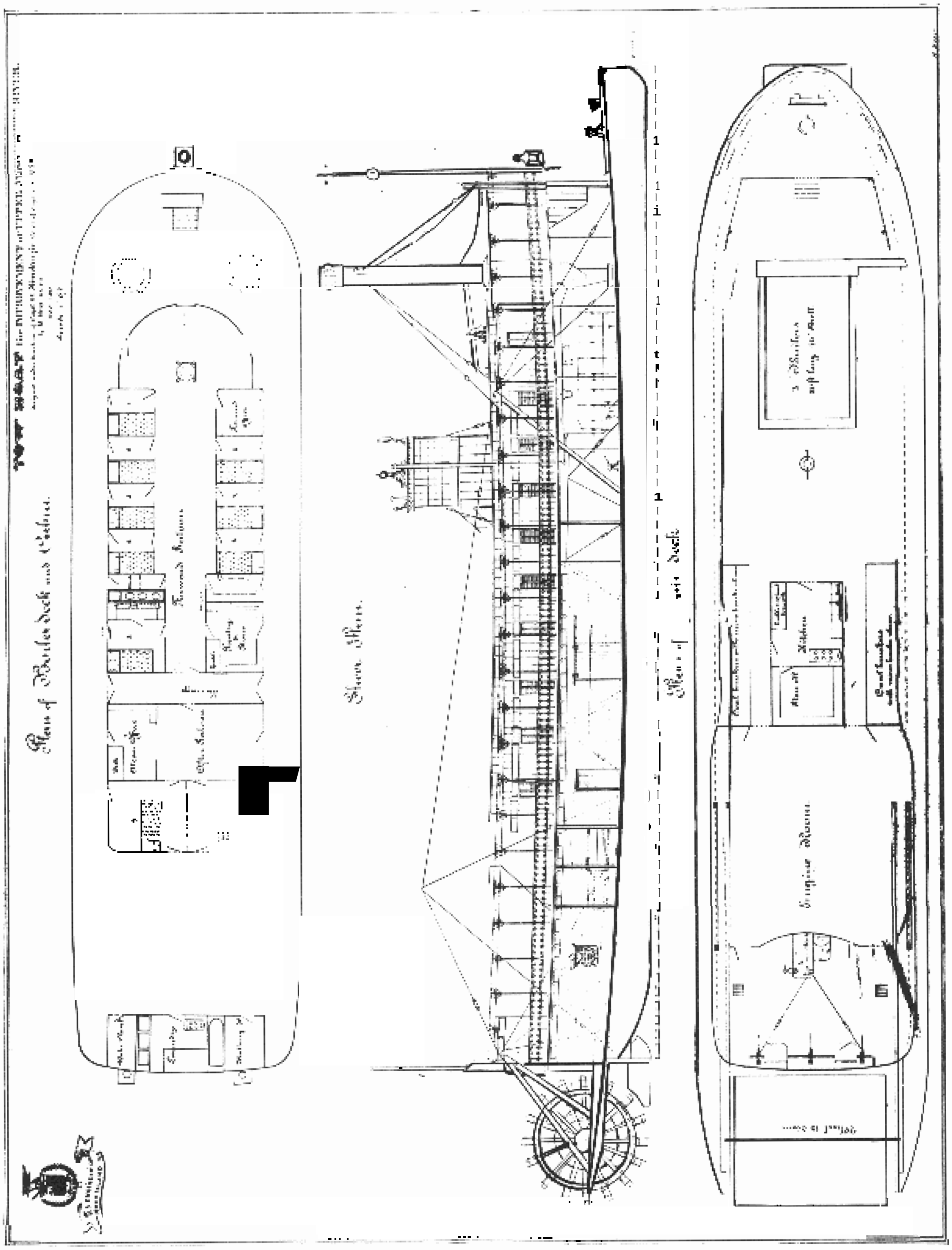


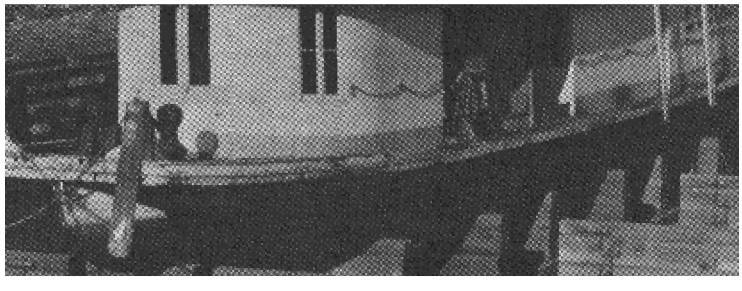
The practice af modifying older boats into new ones can be seen by comparing this photo of thr *David Tipton* with that of the *Mackenzie*. The *Mackenzie*, with minor modifications {including a Texas deck). became the *Tipton*.

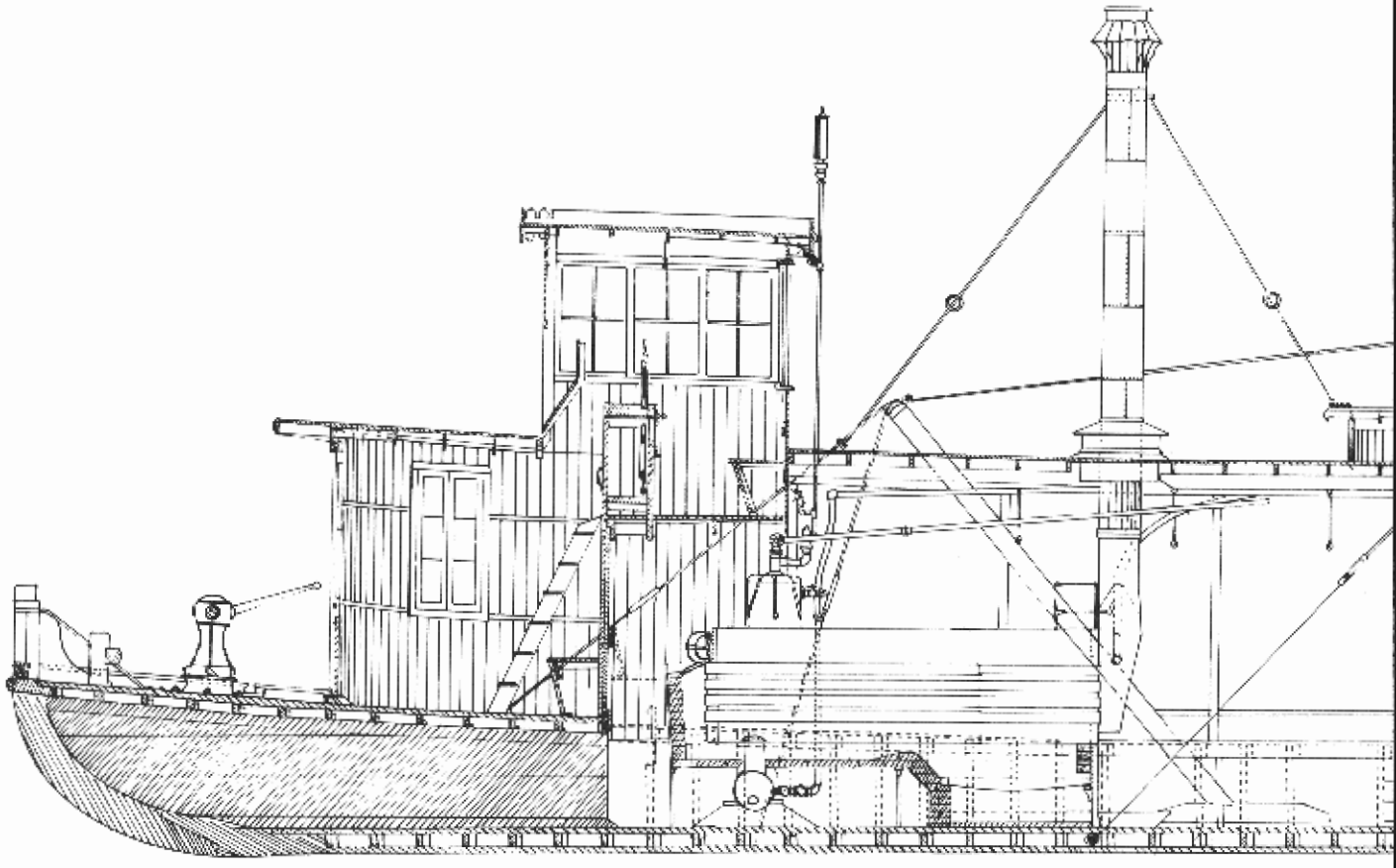
hold the record. This small dredge was built by Meigs at Keokuk in 1893 and worked until it sank next to the dry dock at Keokuk in the late 1940's.

The careful repair in which the District boats were kept was expensive, and maintenance costs of nearly all of the boats far exceeded their original cast, The Coal *Bluff*, for instance, which had been purchased for $8,000 in 1881 when it was three years old, cast $76,220 to maintain through 1917. The *Alert* was bought by the Government for $6,000 and ran up a repair bill of $38,822 by 1917.[9]

By 1882, in addition to the above steamboats, the Rock Island District fleet consisted of 55 stone barges and the necessary complement of quarter-boats, pile drivers, and fuel flats. However, there were still not enough boats and machinery on the Upper Mississippi either in Government or private hands, to carry aut the 4½-foot channel project at the rate it was being funded by Congress. In 1882 Assistant Engineer E.F. Hoffmann investigated





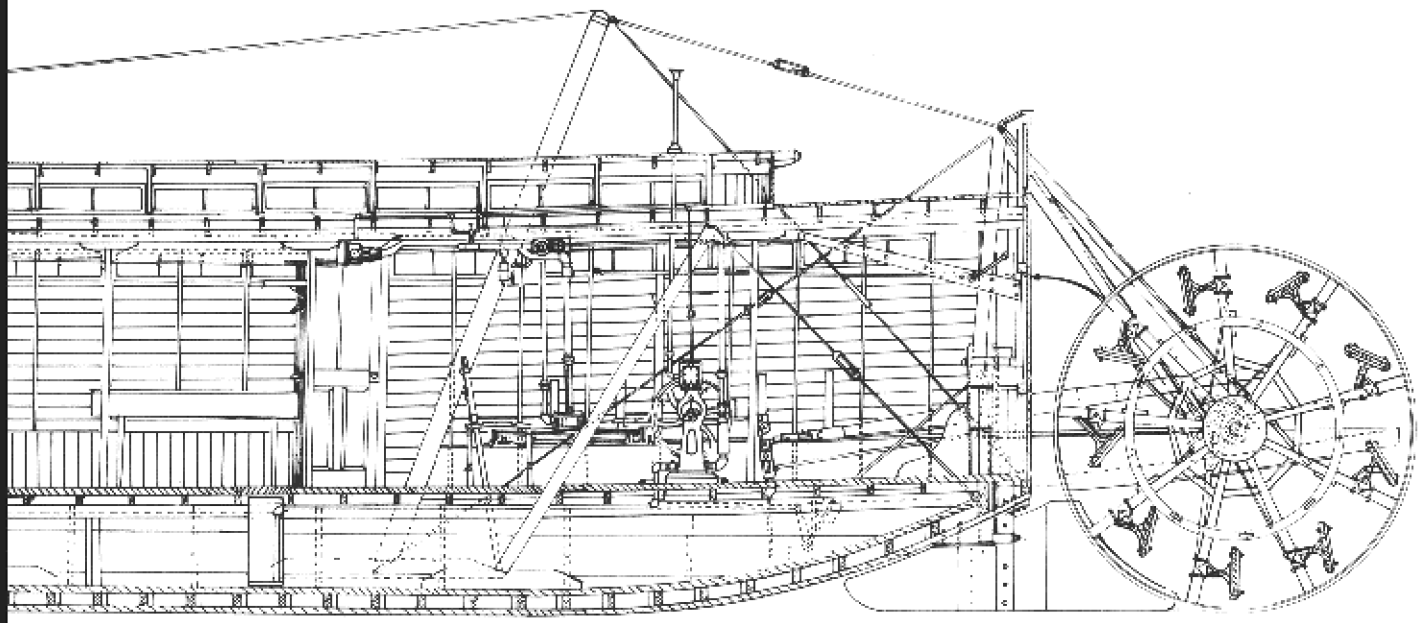


Side view of the steam launch *Lucia*.
—Redrawn by Randall Tweet, from original plans in the National Archives.

Montgomery Meigs designed and built another small steam launch at the canal shops in 1885. Named the *Lucia* after one of Mackenzie's daughters, she soon became the sweetheart of the Rock Island fleet. She was a plain-looking boat, but of all the boats Meigs designed, she remained his favorite.

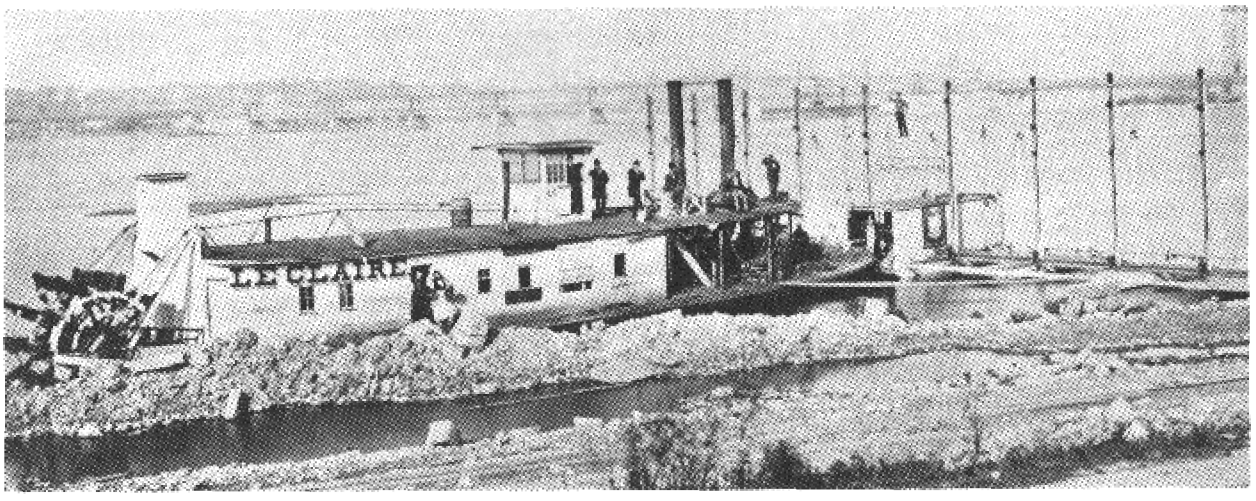
The *Lucia* was the Upper Mississippi's equivalent of "the little engine that could." Smaller than most of the District boats, with a 78-foot length, a 16-foot beam, and a 24-inch draft, her 9-foot sternwheel turning 25 revolutions per minute, the *Lucia* performed a wide variety of tasks on the Mississippi. She acted as a dredge tender, she towed barges, placed buoys on the rapids, got booms in for the winter, worked on levees during floods, and carried distinguished visitors up and down river.

During periods of flood (which were frequent through the 1880's), she worked the bottom lands



where the Des Moines River meets the Mississippi. When this area flooded, the *Lucia*, rowboats in tow, would paddle around the flood plain rescuing people from roofs and upper windows. The rowboats would bring them to her crowded decks. At night during the floods, the *Lucia* would turn her searchlight straight up to act as a beacon for boats engaged in rescue work.

Corneila Meigs, the daughter of Montgomery Meigs and a well-known author, remembered the *Lucia* well. In a letter to the Rock Island District, she recounted how the *Lucia's* pilot-captain, Billy Adams, and her engineer, Tom Noonan, had worked faithfully on the boat for 20 years without speaking to each other, for they were sworn enemies. When the *Lucia* capsized in a tornado just above the Keokuk bridge, Adams was not on board, but Noonan died at his engines trying to keep up power, one of the very few fatalities in the history of the District fleet.

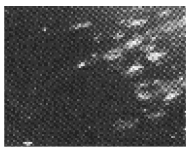


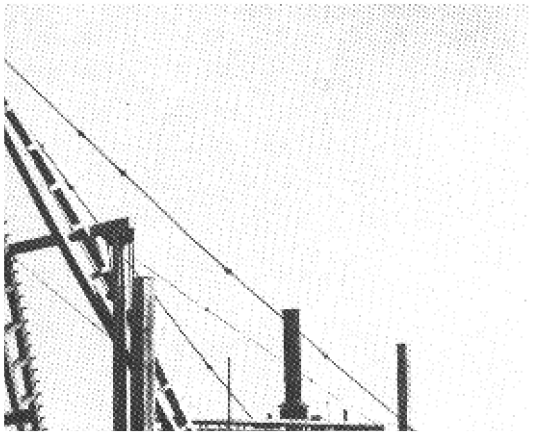
The automatic sounding machine designed by Colonel J. N. Macomb, and later named after him, attached to the steamer *Le Claire*.

The *Lucia* had her hull rebuilt in 1895, and kept at her work until well after World War I.

By 1887 the Rock Island District had 11 steamboats and some 100 barges, dredges, dump boats, and quarterboats. A portion of these were transferred to Captain Ernest H. Ruffner when he became engineer in charge of the section of the Mississippi from Keokuk to the mouth of the Illinois River under the Mississippi River Commission in 1884. Among these were the *Coal Bluff*, the *Iris*, and the *Irene*. In addition, Ruffner bought a new small steamer, the *Success*, from H.M. Horton of Pomeroy, Ohio, for $6,500 in March of 1887. Originally the Success was to have acted as a dredge tender for a new hydraulic dredge that Ruffner intended to experiment with. Previous hydraulic dredges on other river systems had been used with mud and silt, but the sand of the Upper Mississippi presented new problems. However, all bids for the dredge were too high. Ruffner solved the problem by determining to make the *Success* herself into a hydraulic dredge. New dredge machinery was ordered and the *Success* was altered to fit this equipment.

Some sort of hydraulic dredge was badly needed on the improvement projects. Dipper dredges worked well on rock, but in sand the bars reformed as quickly as the dippers were able to take sand away.





Apparently the hard work demanded of such a small boat was too much, for the *Success* lasted only until 1893, the year the section of the river in Captain Ruffner's charge was transferred back to Mackenzie.

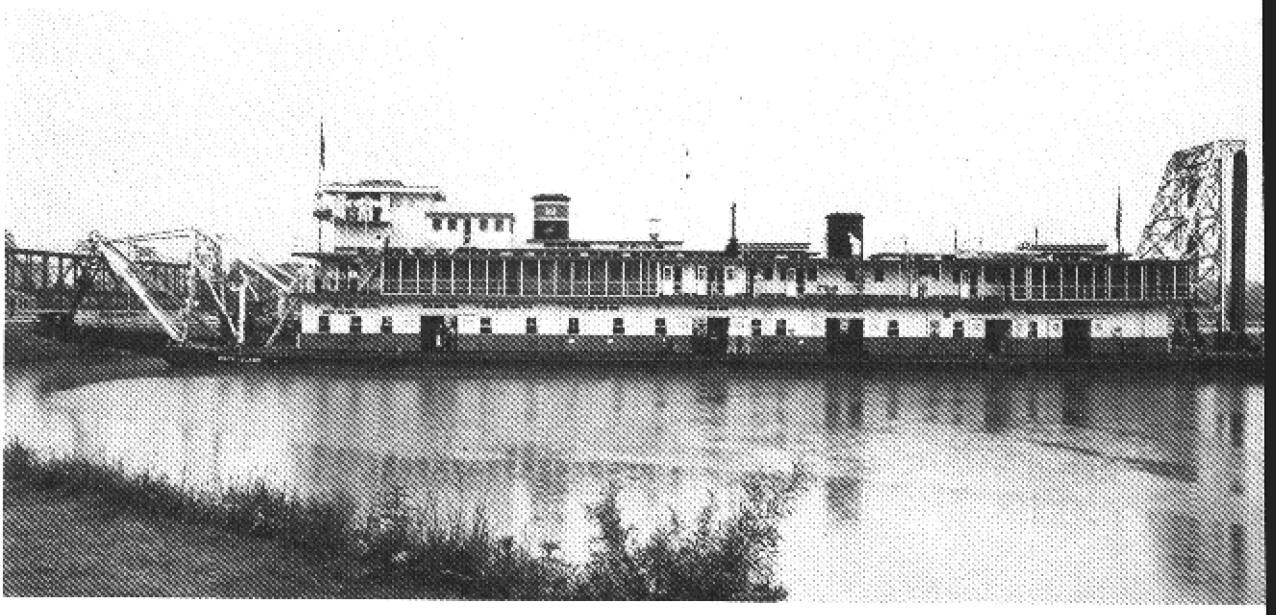
A steam drill boat at work preparing holes for underwater blasting.

As the work on the 4½-foot channel expanded from 1890 to 1900, the Rock Island District fleet gradually increased. By 1903 the Corps owned 20 steamboats, 4 dipper dredges, two new hydraulic dredges (the *Geyser*, built in 1893, and the *Hecla*, built in 1901 by William Thompson at the new Fountain City Boatyard), 22 quarterboats, 18 office boats, 3 steam drill boats, mors than 100 barges, store boats, dump boats, derrick boats, and a large number of small powder boats, grasshoppers, skiffs, and loading boats.

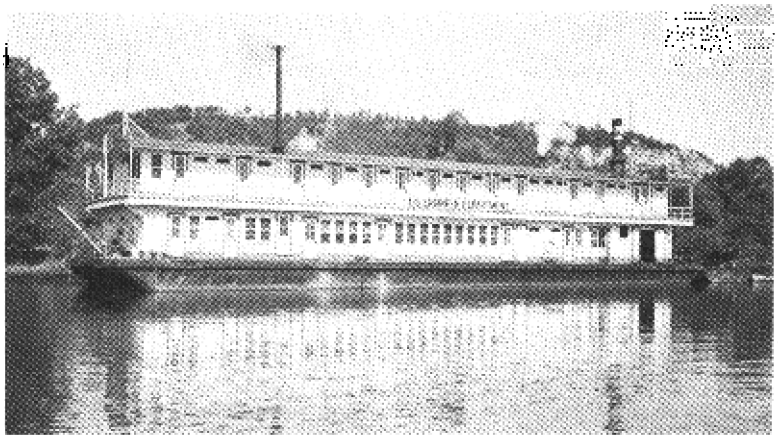
The coming of the 6-foot channel project increased the need for larger towboats and more powerful dredges. In 1907 the District boatyard at Fountain City was expanded, a new boatyard begun at Stillwater, Minnesota. Stillwater was not really central to the St. Paul-to-Winona District which the boatyard was to serve; it was 23 miles up the St. Croix River and inaccessible at low water. But it was an inexpensive site. The land for the new yard cost $1,500, and had already been the site of a previous boatyard, the Stillwater Marine Ways Company, whose buildings were still standing and usable. Further, the boatyard connected to Stillwater by electric car, was on the line of two railroads, and had an excellent bay for harboring the District fleet in the winter. And unlike St. Paul, which might haw been a more logical location, Stillwater was a small town where, as DuShane noted, "labor troubles will be at a minimum."[11]

A typical dipper dredge added tu the Rock Island District fleet for the 6-foot channel project

Not everyone in the District Office agreed with Riche's expansion of building and repair facilities. C.W. Durham, chief engineer under Riche, complained about the expansion from the beginning. Finally, after the yard3 had been built and had proved themselves to be expensive, with a workload under what Riche had hoped, Durham ended his series of memos with an I-told-you-ao note signed "The Juggler." The facts, wrote Durham, "ought to be plain



The hydraulic cutter dredge Rock *Island,* added to the fleet in 1337. At 230 feet. displacing 1,500 tans: this "million dollar dredge," as she was known, was the largest boal ever to be a part of the Rack Island District.



A Diatriet quaAerboat, typlcal of those used to house hired labor in the field.

enough even to a man from Missouri. . . The mistake made and one which I have fought against from the beginning is in imagining that you were going to start 4 *big factories* where all the work you have in sight for 20 years will not keep *one* busy!!!"[12] Instead, Durham suggested, all of the new work required could have been handled by "a few pneumatic tools and a steam saw."[13]

The Stillwater Boatyard was phased out after completing construction from the last of the 1911 appropriations. The Fountain City Boatyard continued to serve the Rock Ishnd District until it was transferred to the St. Paul District. It now serves as a service base where the St. Paul District dredge

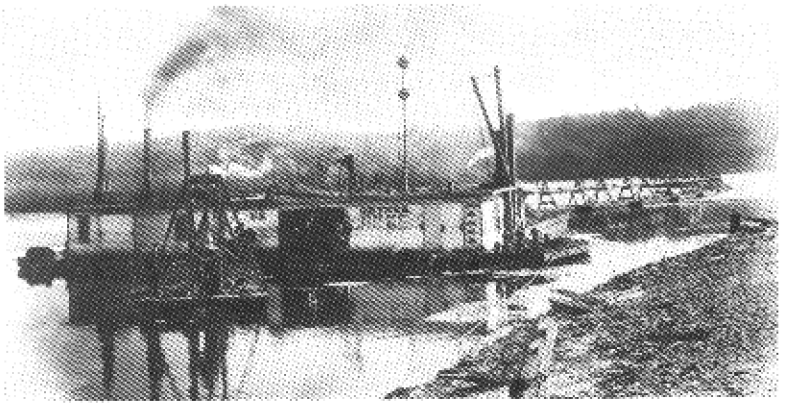
William Thompson and several other boats are stationed. The Des Moines Rapids dry dock, which replaced the old canal dry dock in 1912, still exists, but a permanent coffer dam has replaced the gates to safeguard its deteriorating condition.

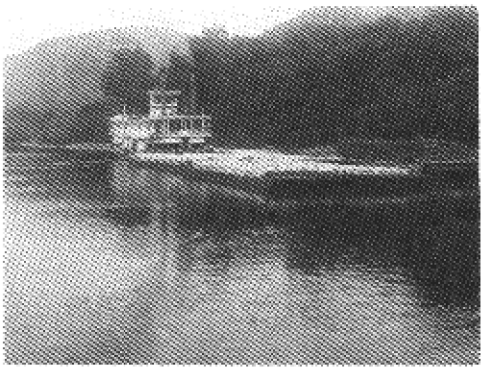
In June 1907 when the first of the appropriations for the 6-foot channel was authorized, Riche received permission to build two 15-inch and one 18-inch hydraulic dredges at the Government boatyards. One dredge was built at each of the yards. The *Vesuvius*, built by William Thompson at Fountain City, was 115 feet long with a 30-foot beam and a 31-inch draft. It displaced 218 tons and used 17-inch discharge pipes. A sister ship to the *Vesuvius*, the *Pelee*, was built at South Stillwater Boatyard by DuShane, while the third dredge, the *Etna*, with 18-inch discharge pipes, was built by Meigs at Keokuk.

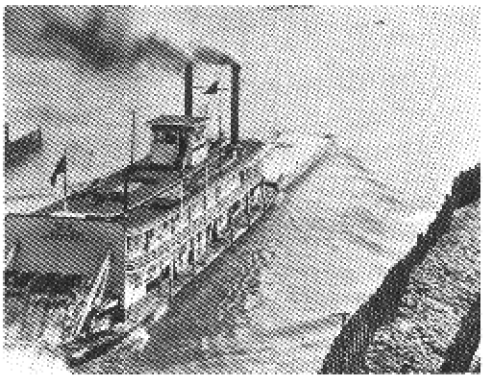
These three dredges were capable of far more work than the earlier dredges. The *Etna*, for example, pumped an average of 287.7 cubic yards an hour, 3,230.7 yards a day. She made a cut 6 to 7 feet deep moving ahead at 14.7 feet per hour. In 1917 the *Etna* dredged 252,694 cubic yards — about as much as was removed during the whole Rock Island Rapids improvement,

An appropriation of $1,0010,000 in 1910 provided for three additional 18-inch hydraulic dredges. Design and construction of these dredges was assigned to Meigs at Keokuk. They were completed in 1912.

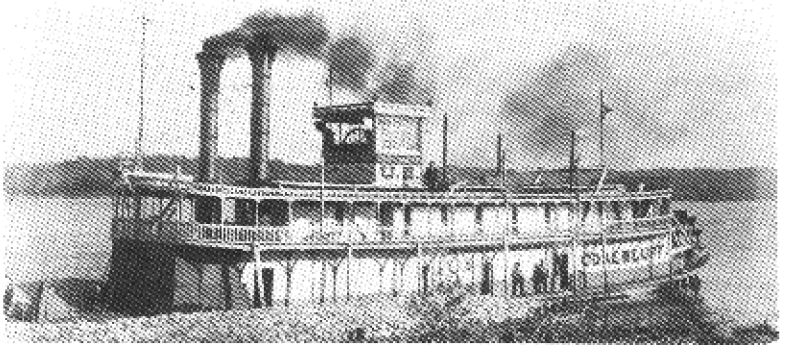
Naming of these three dredges proved to be as difficult as building them. DuShane at South Stillwater in 1908 had suggested "Popocatopetl" as the name for what became the *Pelee*. The naming of boats apparently got further out of hand when District Engineer Major Charles Keller asked Meigs to pick names for the new dredges. On September 10, 1910, Keller notified Meigs that his names [what these were is not known] were not satisfactory and to try again,[14] but a week later Keller wrote to Meigs informing him that he was "respectfully requested to name the new dredges Warren, Macomb, and Farquhar."[15]

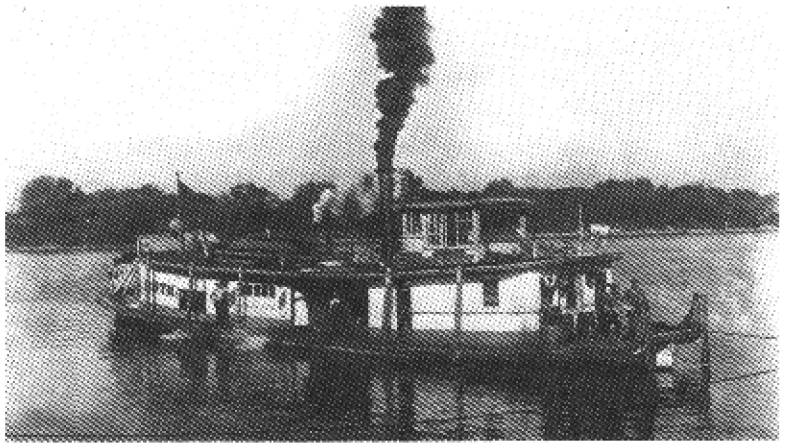






The *Ellen*, flagship of the District fleet during much of the 9-foot channel project. The *Ellen* was known as the "District Engineer's royal barge."





Several workhorses of the District fleet. Right, top to bottom: the small hydraulic dredge *Geyser*, which worked from 1893 until she sank near Keokuk in the late 1940's; the towboat *Muscatine*, one of the "silo boats" (so-called because of its height and the forward placement of its pilot house); the steamer *Coal Bluff*; the 65-foot steam launch *Ruth*, companion to the *Lucia*.

The Corps of Engineers, however, had begun a policy which discouraged naming boats after Engineer officers because of the difficulties this had caused. (The Rock Island District had already carried this to extremes. They had named a quarterboat the *Hoffmann* in 1874, and later they had named a sounding machine the *J.N. Macomb.*) In October, orders from the Chief of Engineers to Major Keller changed the names of the new dredges to Hydraulic Dredges Nos. 6, 7, and 8. These same orders changed the name of the *Hecla* to Hydraulic Dredge No. 2, and the name of the *Etna* to Hydraulic Dredge No. 5.[16] The reason given for the order was "to avoid the use of strange and outlandish names for plant in this District."[17]

Photographs taken of boats during this period show that the names were removed and replaced by numbers. The full titles painted on the boats read as follows:

U.S. Engineer Department
Upper Mississippi River Improvement
Hydraulic Dredge No. 3

By July of 1911 names were again permissible, but the names for the three dredges being constructed were still in debate. In a letter to Keller, Meigs complained that Keller's suggestion of Sucker and *Outcast* (note the puns) were no good. Meigs felt that the names should be *Erobus, Terror,* and *Stromboli,* to keep the tradition in the District of naming dredges after volcanos.[18] Late in 1912 the dredges finally received names: *Apo, Taal,* and *Mayon,* all Phillipine volcanos. The last bit of sparring in the dredge controversy came in a tongue-in-cheek letter sent to the Chief of Engineers by C.W. Durham in 1913, In that letter, Durham wrote that he didn't see why "Hector," "Achilles," "Castor," and "Pollux" wouldn't work as names for the dredges, "since they are not the names of [Corps] officers living or dead."[19]

Although most of the dredging on the 6-foot project was in sandbars, much rock still remained to be excavated; to take care of this three new dipper dredges were built at Rock Island in 1914. The

Davenport, *Keokuk* and *St. Paul* were identical sister ships, each displacing 348 tons, built by the Rock Island Bridge and Iron Works using machinery from the Osgood Dredge Company. Each cost $56,668 to build. They had 2-cubic yard dippers at the end of 45-foot booms and were able to dredge in as much as 18 feet of water.

As big and expensive as these boats were, they operated with far more economy than the simple equipment of the early days of improvement work. Each of the dredges was able to dredge an average of 26 cubic yards to 90 cubic yards of sand or mud per hour at a unit cost of 0.515 cents per yard. This compared with the average of more than $9 per cubic yard paid to remove rock in 1854, and the $37 per cubic yard that Lieutenant Lee paid on the Des Moines Rapids in 1838-39.

By the end of 1914 the Rock Island District had spent a total of $2,680,795 on its fleet.

The last of the steamboats built for the Rock Island District were the four identical medium towboats, the *Le Claire*, *Minneapolis*, *Muscatine*, and *Nauvoo*, built at Grafton, Illinois, by Edward Howard in 1915. These were steel-hulled boats of 254 tons, with a length of 144 feet, 10 inches, and a beam of 34 feet, drawing 3 feet of water. Rivermen nicknamed them the "silo boats" because of their height, their tall, straight sides, and the location of the pilot house forward of its usual location.

The silo boats were designed at the Rock Island District Office, and the designs created some embarrassment among the oldtimers. After looking at ths planned design, William Thompson wrote to C.W. Durham from La Crosse:

> The cabin on the towboats, as originally planned, is the rottenest thing I ever saw, and that pilot house is simply ridiculous, shoved *way* up forward. I showed the plan to same pilots and they all laughed at us. For the Lord's sake, cut that out and build the cabin according to Richard's [Richard Monroe, Principal Assistant Engineer in the Rack Island Office] plan. There is not a steamboatman in the world acquainted with the Mississippi River that would recommend such an arrangement. We would be the laughing stock of everybody on the river. The hull is fine and I don't see that it could be made any better, but that cabin and pilot house would be a laughable proposition if it were not so serious."[30]

The silo design prevailed, and can be seen in the illustration on page 216.

One *boat* which deserves special mention is the *Ellen*, the "District Engineer's royal barge."[21] The *Ellen* was built at La Crosse, Wisconsin, in 1907, and bought by the Rock Ishnd District from the Cargill Estate[22] in 1911 for $12,000. She was an oak-hulled, 200-ton boat, 144 feet long with a 26-foot beam and a 3-foot draft. Her 18-foot stern wheel moved her along at 10 miles par hour.

The *Ellen* became the flagship of the District fleet, inspecting work in progress, taking visiting dignitaries wound, and representing the Corps at dedication ceremonies for locks and dams during the 1930's. Her captain was James Maxwell, an old riverman who had earlier worked for ths Lighthouse Service taking care of the 17 miles of lights along the Rock Island Rapids. "Jimmy the Lamp," as he was known then, made the trip between Rock Island and Le Claire daily in a small rowboat *in order to* tend the lights.[23]

All of these additions between 1900 and 1915 increased the District fleet to the point where it was *by* far the largest single operation on the Upper Mississippi In 1918, when there were fewer than 80 packet and towboats left in private hands, the Rock Island District fleet numbered 19 steamboats, *8* hydraulic dredges, *5* dipper dredges, 4 gasoline *screw* launches, 12 small gasoline paddle launches, 48 motor skiffs, 238 barges, and 145 office boats, quarterboats, fuel flats, store boats, spudboats, buildingboats, grasshoppers, dump boats, derrick boats, houseboats, and drill boats, in addition to a full complement of lifeboats, yawls, and skiffs for each of the steamers,

In 1930 the Rock Island District received its last paddle wheel boat and its first diesel powered boat when the *Fort Armstrong* arrived, She was a medium boat, 109 feet long with a 20-foot beam, and she wa3 powered by diesel electric drive with a chain to the paddle. In the late 1940's the *Fort Armstrong* was transferred to the Huntington Engineer

The diesel towboat Rack *Island*, 64 feet long with 850 horsepower.

District. With the coming of the new 9-foot channel, there was no longer any need for the paddle wheel.

The District fleet experienced a small spurt of new growth as the Corps prepared for the 9-foot channel project in 1930. Thirty-one new pieces of floating plant were bought or constructed in 1930, and an additional 46 pieces were contracted or built by hired labor in 1931. But most of these were smaller boats and barges designed not so much for construction a3 for the growing responsibility of maintenance!.

With the 9-foot project dons mostly by contract, the need for an extensive Government fleet disappeared. By 1937 the fleet had been reduced to three steamboats and one diesel electric towboat. There were still seven suction dredges, but only one dipper dredge and about one-fourth the number of quarterboats, barges, and launches there had been in 1918.

Two impressive pieces of equipment were added late in the 9-foot channel project. In the summer of 1937 a new highpowered hydraulic cutter-head dredge, the Rock *Island*, arrived in the District. At 230 feet long with a 48-foot beam and a 4.5-foot draft, displacing 1,500 tons, the Rock *Island* was the largest dredge the District had ever owned. Four dredges the size of the Geyser could be placed on her deck.

The twin-screw, 450 horsepower *Clinton* arrived in the District in 1974.

The *Rock Island* was capable of making a cut 400 feet wide in 30 to 35 feet of water. Its output when operating on 2,500 feet of floating and shore line was about 1,200 cubic yards per hour. The *Rock Island*'s hull was of wrought iron to resist deterioration.

Power for the dredge pump was supplied by a 1,000-horsepower diesel engine. Two 650-horsepower diesel driven generators supplied power for the twin screws for propulsion; these same engines furnished current to operate the cutter motor and all auxiliary machinery.

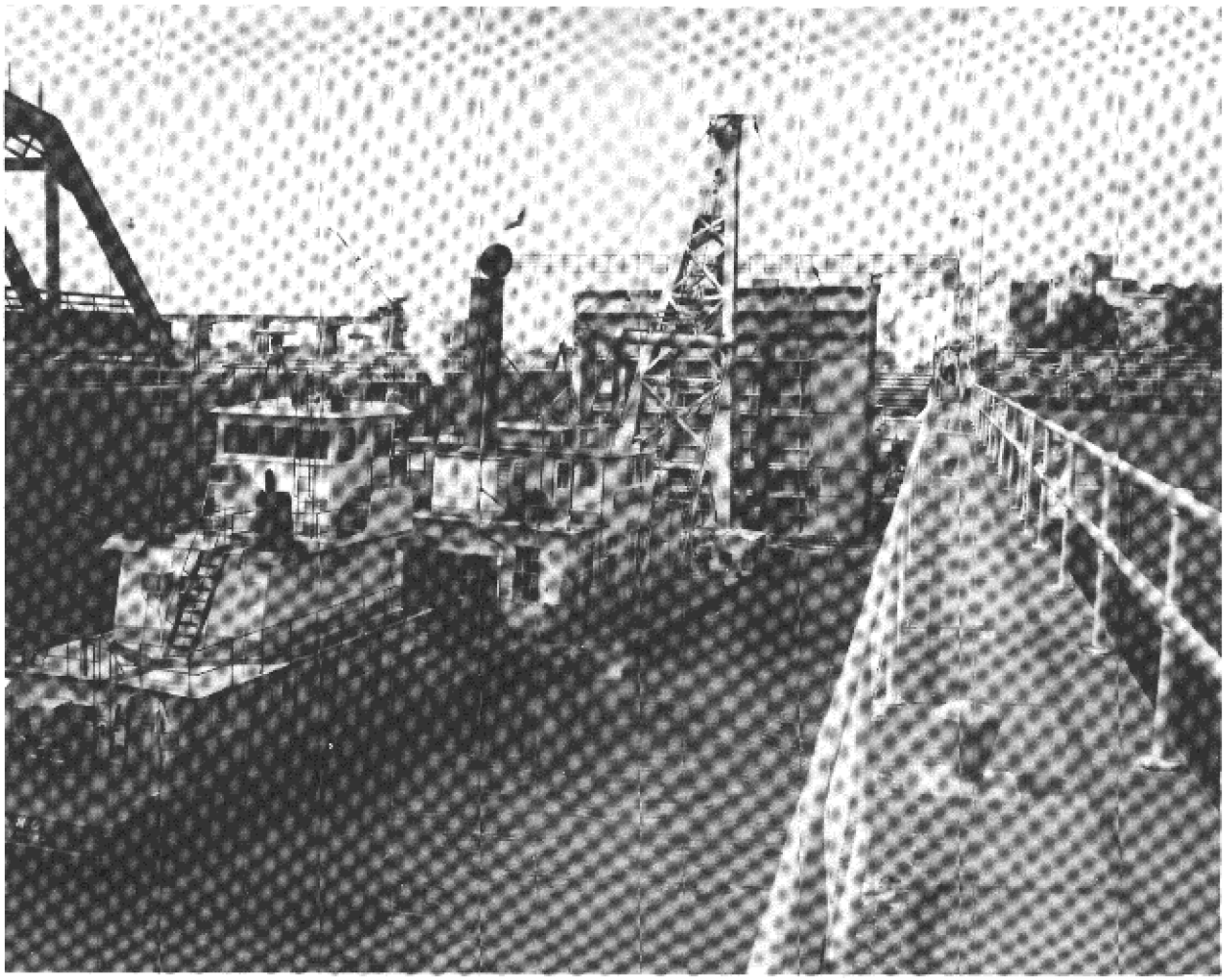
The *Rock Island* was a complete unit, with a machine shop for field repairs, quarters for 68 crewmen, recreation rooms and laundry facilities. The dredge was built by the Dravo Construction Company of Pittsburgh at a cost of $1,000,000.

She worked in the Rock Island District maintaining the 9-foot channel until 1958, when she was transferred to the St. Lawrence Seaway project. Her duties in the Upper Mississippi were taken over by a sister dredge, the *William Thompson*, operating out of the St. Paul District. The *Thompson* spends several weeks each season in the Rock Island District as needed.

A second workboat, the *Hercules*, came to the District in 1942. Aside from the towboats, this derrick boat is today the largest piece of equipment in the District fleet. She is used primarily for maintenance work on the locks and dams, being used to lift lock gates out for repair and overhaul.

Two 42-foot towboats, the *Macomb* and the *Monmouth*, were added to the fleet in 1942-43. These were 350-horsepower boats of single deck design with pilot houses eight feet above the waterline. Two additional boats of the same size were added in 1950, the *Cottel* and the *Craigel*, both 165-horsepower, single-screw boats. Of these, only the *Monmouth* is still with the fleet.

Joining the *Monmouth* and the *Hercules* since 1950 have been several modern boats. The first of



The derrickboat *Hercules* at work on a gate at Lock 26 in the St. Louis District. Operated by the Rock Island District, the *Hercules* works in the St. Louis and St. Paul Districts as well.

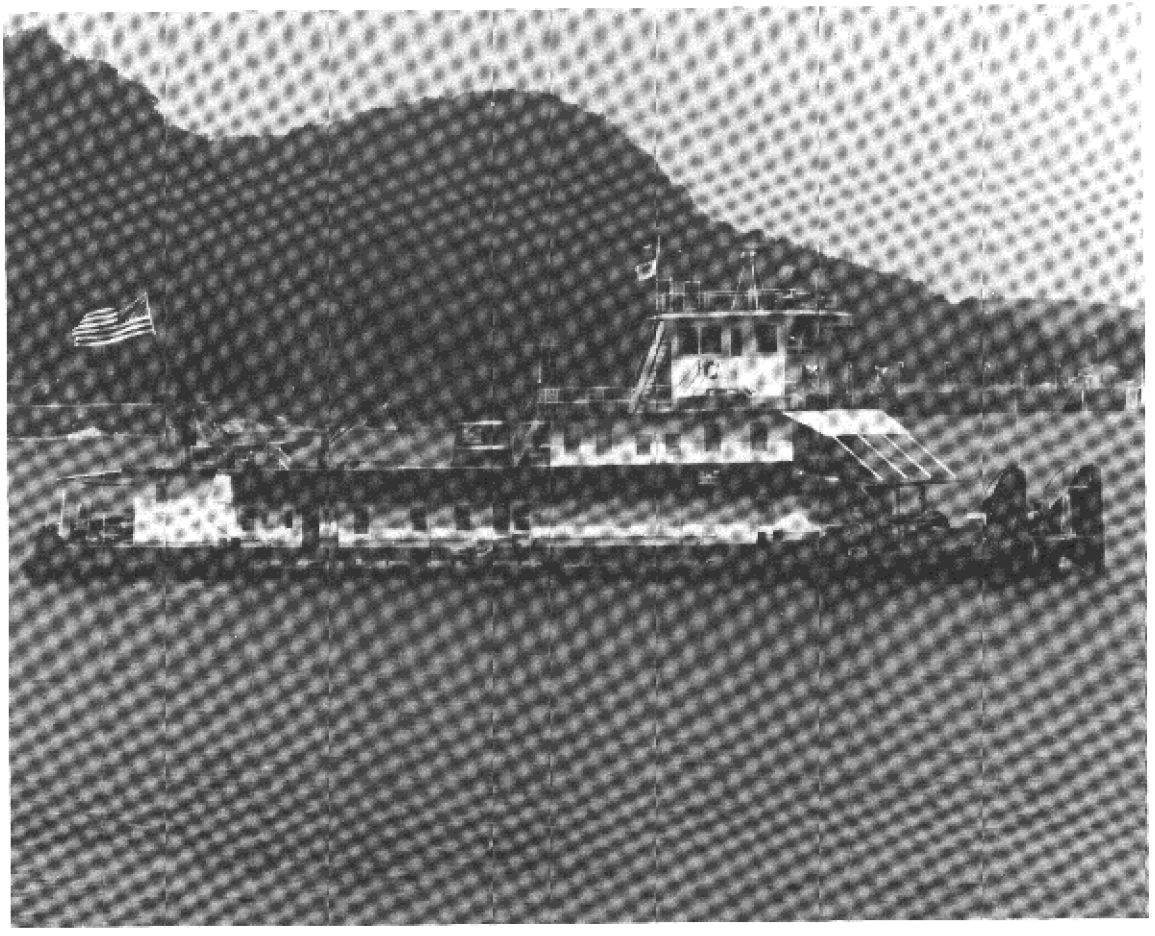
these was the *Rock Island*, a 64-foot towboat of 850 horsepower. In 1974 a tender, the *Clinton* was built for the Rock Island District. The *Clinton* is a twin-screw boat of 450 horsepower. Two years later another tender, the 52-foot *Muscatine* was christened at Muscatine, Iowa. The *Muscatine* is the sixth boat named "Muscatine" on the Upper Mississippi, the first being the District sternwheel steamer built in 1915.

The arrival of a new boat in the District still creates excitement. Typical of this was the christening of the *General Edgerton*, a new survey boat, on Engineer Day, June 16, 1977. At ceremonies held at Locks and Dam 16 in Rock Island, the boat was

named for Major General Glen E. Edgerton, who served as Rock Island District Engineer from 1930-1933. Edgerton became Governor of the Panama Canal Zone during World War II and died in 1976.

The boat was christened by Mrs. James N. Rothschild, General Edgerton's daughter. As part of the ceremony, the Canal Zone governor's flag was raised on the boat; the flag was afterwards presented to Colonel Lycan, the District Engineer, for permanent display aboard the boat.

The most recent new boat in the District is also the largest, the *Andrews*. The *Andrews* is 120 feet long, 27 feet wide, and has a draft of 6 feet, 6 inches. She is powered by two 800-horsepower diesel engines. Originally built in 1954 for the US Army



The *Andrews*, added to the District fleet in 1980, is currently the largest boat at Rock Island. It is 120 feet long and is powered by two 800-horsepower diesel engines.

Transportation Research and Development Command at Fort Eustis, Virginia, she was transferred to the Vicksburg District Corps of Engineers in 1961, and from there, in 1980, to the Rock Island District.

Along with the transfer of the Illinois Waterway to the Rock Island District on July 1, 1980, came several additional pieces of floating plant based on the Illinois River. Basad at the Corps of Engineers Joliet Project Office are two towboats, the *Channahon* and the *Kankakee*; a survey boat, the Ranger; and a crane barge, the *Mazon*. Based at the Corps of Engineers Peoria Project Office are two small towboats, the *Pekin* and the *Peoria*. Small towboats are also stationed at the Peoria Lock and the La Grange Lock to assist in raising and lowering the wicket gates on the dams at those places. The *Sangamon* is stationed at the Peoria Lock, the *Beardstown* at La Grange.

Also stationed on the Illinois Waterway are a steam derrick, *Derrick Boat No. 3*; the *Atlas*, a 170-ton diesel electric gate lifter, and two additional survey launches.

The Rock Island District fleet has mirrored the changes in the general picture of river transportation. The present fleet is smaller and less picturesque, but the new boats are far more powerful and efficient than the old boats. They get a lot of work done quietly.

Notes

Chapter 6

1. The annual *Floating Plant Reports* published yearly along with the *Annual Reports* until 1920 show how large the Rock Island fleet was. The *Floating Plant Report for 1918*, for example, shows the Rock Island District in possession of 199 named pieces of equipment (541 total plant) while the Kansas City District, next largest in number of floating plant, lists 45 named pieces (295 total).

2. C.W. Durham, "Memorandum," January 30, 1911, Old Rock Island File, RG77, Kansas City Federal Records Center.

3. Major G.K. Warren to Chief of Engineers, March 30, 1867, File 25, Letters Received, RG77, NA.

4. Colonel Wilson to Chief of Engineers, June 19, 1868, File 1683, Letters Received, RG77, NA.

5. Herbert Quick, *Mississippi Steamboatin'* (New York: Henry Holt and Co., 1926), p. 125.

6. Colonel Macomb to Chief of Engineers, October 6, 1877, File 71, Letters Received, RG77, NA.

7. General Gross Barnard was a graduate of West Point in 1833, 2nd in his class. He was a professionally respected engineer in both practical and theoretical circles, publishing several engineering treatises. During the Civil War he served as Chief Engineer of the Department of Washington and the Army of the Potomac. Late in the War he became Chief Engineer of the Armies in the Field under General Grant.

8. *Annual Report*, 1879, II, p. 1106.

9. William Thompson, Annual Report of Floating Plant, 1918, Old Rock Island File, RG77, Kansas City Federal Records Center.

10. *Annual Report*, 1888, III, pp. 1463ff; and 1889, III, p. 1720.

11. J.D. DuShane to Major Riche, August 7, 1907, Old Rock Island File, RG77, KCFRC.

12. C.W. Durham, Memo, May 17, 1908, Old Rock Island File, RG77, KCFRC.

13. *Ibid.*

14. Major Keller to Montgomery Meigs, September 10, 1910, File 1652, Vol. 40, Press Copies of Letters Sent ("General Letter Books"), RG77, NA.

15. Major Keller to Montgomery Meigs, September 19, 1910, File 1652, Vol. 40, Press Copies of Letters Sent ("General Letter Books"), RG77, NA.

16. Major Keller to Montgomery Meigs, October 7, 1910, File 1652, Vol. 40, Press Copies of Letters Sent ("General Letter Books"), RG77, NA.

17. Major Keller to J.D. DuShane, October 1, 1910, File 1652, Press Copies of Letters Sent ("General Letter Books"), EG77, NA.

18. Montgomery Meigs to Major Keller, July 17, 1911, File 1652, Press Copies of Letters Sent ("General Letter Books"), RG77, NA.

19. C.W. Durham to Chief of Engineers, January 20, 1913, File 1652, Vol. 40, Press Copies of Letters Sent ("General Letter Books"), RG77, NA.

20. William Thompson to C.W. Durham, November 12, 1913, Old Rock Island File, RG77, KCFRC.

21. Interview with Robert Clevenstine, Chief of Operations, Rock Island District, June 13, 1973.

22. Cargill is a large Minnesota-based grain concern.

23. Interview with Mrs. M.F. Weissmann, April 21, 1971.